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ABSTRACT

In the early days of physical education, the value of physical fitness was associated with preparation for defense in wartime and preventive medicine. Physical fitness waned in importance in the period between the two World Wars, to become concommitant to other objectives of physical education. A resurgence in emphasis on fitness was triggered and promoted by presidents of the United States by the establishment of the President's Council on Physical Fitness and Sports. Physical fitness projects developed and conducted by public schools during this period sought to improve and strengthen students physically, individually, mentally, and emotionally and to promote interest in and support for physical fitness. The present-day running-jogging phenomenon appears to be indicative of attitudes toward physical fitness today. The American Alliance for Health, Physical Education, Recreation and Dance has done much to promote physical fitness, and in particular, has encouraged physical fitness research. (JD)

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# Trends in Physical Fitness: A Personal Perspective*

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It was an honor to be tendered and a privilege to accept the invitation of the Physical Fitness Council's Program Chairman, Russell Pate, to present a personal perspective of physical fitness trends in the United States during my career. That career started upon my graduation from Springfield College in 1925 and with my acceptance of a physical education and coaching position in the Chautauqua, New York, public schools. My professional interest and concern for physical fitness continued consistently since then. It was during my Chautauqua tenure that Frederick Rand Rogers, Director of the Health and Physical Education Division in the New York State Education Department, introduced his Physical Fitness Index test and follow-up program into the schools of the state. It seemed to me then, a belief that became stronger as the years went by, that this test measured two of the basic components of physical fitness, muscular strength and muscular endurance, and that a program designed to help physically subpar boys and girls should be a primary concern of physical educators.

An amusing incident occurred during that time. Our school and another nearby purchased and used the equipment needed for giving the PFI test. The results were very poor for our rural school, which had good athletic teams. I wrote Dr. Rogers to that effect and questioned the validity of the test. As a consequence, he visited me when on a trip to that part of the state. In reviewing my test records, he said: "The trouble with you is you don't know how to test." I said: "Could be, show me." So, he tested several boys and obtained only slightly better scores than I did. Thinking that the back and leg dynamometer might be faulty, we hung

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it from an overhead ladder and I weighed myself. My weight was recorded as 75 pounds, just one-half my actual weight. The instrument had come from the factory calibrated one-half the actual amount. So, we simply doubled back and leg lift scores with much, much more satisfactory results.

That statement is not an historical report per se; no attempt was made to locate and evaluate historical sources systematically. Rather, it is an observational report of one professional physical educator with a life-long involvement with physical fitness, one who has observed first hand occurrences, trends, and influences pertaining to this field for over a half century. Conceivably, this account does have historical significance, although it may show bias as reflected in the author's experiences and the influences peculiarly exerted upon him and is restricted to his limited observations, primarily in schools and colleges.

## Antedating 1925

Briefly antedating 1925, in order to set the stage for subsequent developments pertaining to physical fitness, physical education in the United States had its origins in physical fitness. Generally speaking, it was the only objective of physical education prior to World War I, although some transition to other objectives was evident in the early 1900's. Here are some observations to support this assumption:

1. The first school and college gymnasia were opened in 1825 at the Round Hill School, Northamption, Massachusetts, and in 1826 at Harvard University. The apparatus, activities, and methods were transplants from the Jahn system of gymnastics in Germany. This system aimed primarily at the development of the physical organism.

2. Another transplant from European physical education was the Swedish, or Ling, system of "medical gymnastics." While first utilized by physicians around

1850, this system was accepted and practiced by physical educators late in the 19th century. Therapeutic exercise and calisthenics evolved from this system, utilized to improve and condition the musculature of the body.

3. Between the Civil War and World War I, most of the physical education leaders were trained in medicine. These men and women physicians were attracted to physical education (physical training as it was known at that time) because of the potential health values of appropriate physical activity properly applied--a form of preventive medicine. However, although the care and development of the body was a primary concern, they also recognized that physical education could contribute dynamically to the individual's mental, emotional and social effectiveness.

As we well know, the tragic lesson of World War I, when a large proportion of our youth were found physically unfit for military service in defense of the nation, resulted in a tremendous expansion of physical education in educational institutions throughout the United States. Prior to this time, only three states had state laws requiring physical education in their schools. By 1932, 36 states, representing 90 per cent of the population, had such a law. Also, colleges and universities throughout the country established similar requirements.

Between World Wars

This period of rapid expansion brought significant changes to physical education in the United States. Medical leadership waned and was eventually supplanted by leaders and teachers primarily prepared in pedagogy, psychology, and the biological sciences. In increasing numbers, colleges and universities graduated men and women who could teach, evaluate, and administer physical education. Graduate programs with attendant research were gradually established, with the first Ph.D. being awarded to a physical educator in 1925. Physical education and athletic facilities were established extensively throughout the country.

And, of special significance for this report, a consistent effort was made to align physical education with total school purposes. In so doing, a reevaluation of objectives occurred, as physical educators studied ways by which they could contribute uniquely to the growth and development of children and to their education for lifetime living. Thus, multiple objectives were proposed for this field. Although variously stated, three objectives were recognized: physical fitness, social efficiency, and recreational competency. Methods, materials, and procedures were developed to realize these objectives based on physiological, psychological, and sociological principles.

So far so good. However, tragically, in the rush to espouse new objectives, physical education generally abandoned its biological heritage. The understandings and tested procedures developed over a century were largely rejected in the rush to adopt new ideas and procedures. Too frequently, the improvement and maintenance of physical fitness became a concomitant of an activity program designed to realize other objectives; actually, it was so expressed by perhaps the most influential leader in physical education at the time. The expression "education through the physical" became prevalent, when it should have been "education <u>of</u> and <u>through</u>" the physical. Data were and still are lacking that physical fitness can be developed systematically and effectively under such circumstances. Contrarily, considerable experiential and scientific evidence exists indicating that the activity program and procedures designed to realize this objective must be specifically planned and carried out.

There were, of course, exceptions to this dismal picture of physical fitness programs in schools and colleges between the world wars; some realistic physical educators developed programs to meet the physical, psychological, emotional, and social needs of individual boys and girls. Excellent texts on corrective and remedial physical education appeared during this time, written by physical edu-

cators, as were books on kinesiology and physiology of exercise. Early texts on measurement appeared, which included procedures for the evaluation of physical fitness components. Numerous relevant researchers were completed by the newly emerging scientific community in physical education. Consistent recognition of the place of remedial physical education was evident in the structure of the American Association for Health, Physical Education and Recreation, as then designated, as the national and several of the district organizations formed Therapeutic Sections. Physical education programs for handicapped students were commonplace in colleges and universities, especially at the larger institutions.

In speaking of the AAHPERD structure as related in some way to physical fitness, although out of chronological sequence, this Physical Fitness Council, then known as Fitness Section, originated in 1957 with a petition submitted by 56 physical educators from around the country. In accordance with Association operating procedures for forming new sections, the Board of Directors approved a tentative section and authorized providing a program at the next annual convention; this arrangement was continued for two years, after which the section was officially recognized by the Association. The first program for the section was held in 1958 at the Kansas City convention. There were two meetings: one on "Basic Components of Physical Fitness" and the other on "Essential Program Procedures for the Development of Fitness." The distinguished speakers at these meetings were: C. H. McCloy, Arthur A. Steinhaus, Henry J. Montoye, Laurence E. Morehouse, Mabel Lee, Marjorie Phillips, Ellis H. Champlin, Karl W. Bookwalter, Donald K. Mathews, Margaret S. Poley, and Joseph B. Wolffe. These sessions were exceptionally well attended; the estimates were 500 at the first and 400 at the second.

## During and Following World War II

Physical educators were utilized in important capacities pertaining to the physical fitness programs of the armed forces during World War II. Such physical

educators as Charles H. McCloy, Arthur A. Esslinger, Leonard A. Larson, Clifford L. Brownell, Elmer D. Mitchell, and Theodore P. Banks served as consultants, wrote physical training manuals, constructed motor fitness tests, and served as commissioned officers directing physical training programs. Arthur A. Esslinger and Arthur S. Daniels headed physical reconditioning programs in Army and Army Air Force hospitals, respectively.

Time does not permit a chronicling of the extensive involvement of physical educators in the war effort. Suffice it to say, this involvement included army, navy, and army air force physical training programs, the physical reconditioning programs in hospitals and convalescent centers of these same services, and the pre-flight training programs of the army and navy and the Army Specialized Training Program at many colleges and universities throughout the country. President Franklin Delano Roosevelt called on physical educators in schools and colleges to provide vigorous physical fitness programs for all boys and girls as a vital contribution to the war effort, although he appointed a non-physical educator (a former famous oarsman) to direct that effort. Other embarrassing appointments from a professional viewpoint were former world heavy weight boxing champions to head the Navy and Coast Guard physical training programs.

"Corrective" exercise has a long history in physical education going back well over a century. Therapeutic applications of exercise were developed between the wars, not only in physical education but in medicine. Following World War II, the application of physical and motor activities in physical and mental therapy reached an all-time high in Veterans Administration hospitals, especially in the treatment of severely handicapped and chronically ill patients. Many of the practitioners were former physical reconditioning personnel in the armed services. Many civilian hospitals and rehabilitation centers adopted similar programs. The corrective therapists involved founded a professional organization, now known as

the American Corrective Therapy Association, which, since 1948, has published a bimonthly magazine, the American Corrective Therapy Journal.

In 1968, the AAHPERD established a headquarters Unit on Programs for the Handicapped; Julian U. Stein was appointed as a full-time consultant and has continued to the present. This Unit has provided a consultative service, a leadership preparation program, program interpretation, and research. In 1972, an Information and Research Utilization Center in Physical Education and Recreation for the Handicapped was established. The purpose of this center is to collect, categorize, interpret, and disseminate information about materials, methods, ongoing programs, promising practices, research, and demonstrations in adapted physical education and therapeutic recreation. In 1975, an Annotated Bibliography in Physical Education, Recreation, and Psychomotor Function of Mentally Retarded Persons was published. For this program, Stein was cited in 1976 by the American Academy of Physical Education.

President's Council on Physical Fitness and Sports (9)

As can be seen from the German and Swedish transplants mentioned earlier, an essential motivation of European systems of physical education in the 19th century was preparation for war. European nations have been bounded by potentially powerful enemies, so vigorous physical activity to maintain a strong and enduring citizenry has been vital to them. In the United States, preparation for defense has not been a concern of physical education, except during periods of armed conflict, since great oceans have been effective barriers to invasion by major powers elsewhere in the world. Today, however, this situation has changed. No longer is our geographical isolation an effective deterent to attack; with the development of aviation and transcontinental missiles, all countries have become neighbors. (7)

Thus, when President Dwight D. Eisenhower formed his Council on Youth Fitness 25 years ago, it is quite understandable that his concern for a physically

fit nation stemmed from his knowledge, as General of the Armies, of the inadequate fitness for military service of too many young men. However, he also treated with respect and concern the findings by Hans Kraus showing that the United States children had many more failures than did Italian, Austrian, and Switzerland children on his tests of "minimum muscular fitness." (15) In his Executive Order forming the Council, President Eisenhower stated: "Since the youth of our Nation is one of its greatest assets, it is imperative that the future of our youth be improved and promoted to the greatest extent possible." As is well known, this council in some form was continued by subsequent presidents John F. Kennedy, Lyndon B. Johnson, Richard M. Nixon, Gerald R. Ford, Jimmy Carter, and now Ronald Reagan.

Over the quarter century history of the Council, various presidential physical fitness consultants were appointed. All but one of these consultants served on a part-time basis; some relied on an administrative assistant to prepare and implement Council plans. These appointments were: Chayne McCarthy, by President Eisenhower; Charles "Bud" Wilkinson by President Kennedy; Stan Musial, with Robert Stewart as assistant, by President Johnson; James A. Lovell, with John P. Wilbern as assistant, also by President Johnson; James A. Lovell, Jerry Apadoca, and Al McGuire, with C. Carson Conrad as a newly designated Executive Director, by Presidents Nixon, Ford, Carter, and Reagan. Conrad, a Council consultant since 1961, was formerly state director of health, physical education, and sports in California. The Council staff has consistently been a small one, around four professional and unusually effective physical educators, some of whom have continued through several administrations, including Glenn Swengros, Simon A. McNeely, Theodore Forbes, James Winthers, Robert Stewart, William L. Haskell, Richard O. Keeler, A. E. "Ash" Hayes, and Matthew Guidry. In the public relations area, the Council has been unusually well served by Richard Snider, V. L. Nicholson, and Kaye Buchanan.

A strong public relations program has been a consistent feature of the Council throughout its existence. Starting with Wilkinson's tenure, it began to exert a national influence on the nature and content of physical fitness programs in schools and colleges, youth-serving agencies, community recreation centers, business and industry, and the adult population at large. An enumeration of Council projects include: publication of pamphlets and brochures, preparation of instructional and motivational films, establishment of pilot programs and demonstration centers, conduct of regional physical fitness clinics, establishment of Presidential Physical Fitness Awards for Youth and Presidential Sports Awards for adults, publication of a quarterly Physical Fitness/Sports Medicine bibliography in collaboration with the National Library of Medicine and of a Physical Fitness Research Digest, stimulated the formation of the American Association of Fitness Directors in Business and Industry, and conducted medical symposia in conjunction with the American Medical Association, the American Heart Association, and other medical groups.

Governor's Councils on Physical Fitness and Sports have been formed in 28 states and many more are in prospect; a National Association of Governor's Councils has recently been established. Two White House sponsored meetings were recently held in Washington: one on physical fitness and sports for all and the other on physical fitness and sports medicine. And, the Council has gone international: under Conrad's leadership in collaboration with Jurgen Palm of West Germany, biannual International Conferences on Physical Fitness and Sports for all have been held beginning in 1973; only nations that have government agencies devoted to physical fitness are eligible for membership; at the 1979 meeting in Portugal, 36 countries were represented.

Consistently throughout its existence, the Council has cooperated with physical education and health-related associations. For example, the AAHPERD has

responsibility for administering the Presidential Physical Fitness Awards program; the American Medical Association, the U.S. Department of Health and Human Services, and the U.S. Department of Defense were associated in conducting a White House Symposium on Physical Fitness and Sports Medicine. Private enterprise has contributed greatly by financing and promoting films, publications, and special projects.

The impact of the PCPFS on thh physical fitness of youth and adults has been tremendous; never before have so few individuals contributed so dynamically. This effort has not gone unrecognized. Citations were made to the Council by AAHPERD in 1972 and by the American Academy of Physical Education in 1975. His Majesty, King Carl Gustaf XVI of Sweden bestowed the Royal Order of the North Star, First Class, upon C. Carson Conrad. Honors have also been bestowed on Glenn Swengros by the Association of Fitness Directors in Business and Industry and on Richard Keeler by the U.S. Attorney General, Griffin Bell, in behalf on the Justice's Department of Occupational Health and Physical Fitness Program. Matthew Guidry recently received the JC Penney Annual Community Service Award.

## Low Strength Program

At the start of this address, it was indicated that my professional involvement in physical fitness began in the public schools at Chautauqua, New York, with use of Rogers' Physical Fitness Index, in order to identify boys who were muscularly weak and to apply appropriate follow-up procedures for their improvement. The PFI is a test of relative muscular strength and muscular endurance. It is derived from a Strength Index, which is a gross measure of dynamometric strengths and arm/shoulder endurance; the SI is related to norms based on sex, age, and weight. Thus, in understanding this program, it is essential to recognize that the primary concern is for those who are muscularly underdeveloped relatively, rather than totally strong.

Generally speaking, the follow-up procedures for low PFI boys and girls consist of: applying muscular strength and muscular endurance activities, while not neglecting circulatory-respiratory endurance; conducting case studies of those who do not improve on periodic re-tests in order to discover the cause or causes of their continuing unfit condition; referring to other specialists, classroom teachers, and parents when physical defects, organic lesions, nutritional disturbances, or personality maladjustments are found or suspected as a result of the case study process; providing health advice, relaxation procedures, guidance and activities to enhance social and personal adjustment, and medical treatment when indicated in individual cases; and re-testing the subfit group at intervals of approximately six weeks and re-directing individual programs in light of re-test and re-study results. (11, ch. 6)

This approach to meeting the individual physical fitness needs of boys and girls was developed by physical educators through use in schools and colleges, so is not just theoretical or imaginative. Further, several extensive demonstration projects have been conducted by public schools in cooperation with nearby colleges or universities. Typically, university professionals assisted in planning the program and in providing physical education major students for administering the PFI test. Local adaptations were made in consultation with school physical educators, administrators, physicians, nurses, counselors, and health education specialists. Among formal projects were:

Central New York State Project (18): For four years, nine public schools participated in cooperation with Syracuse University and the New York State Bureau of Physical Education.

Springfield College Projects (2, p. 328): For several years, Springfield College sponsored projects in New Britain, Conn., and in Holyoke and Longmeadow, Mass., schools.

Oregon Pilot Physical Fitness Project (6): During one school year, eleven high schools throughout Oregon cooperated in a pilot project developed by a committee of the state's Association for Health, Physical Education and Recreation; testers were from the University of Oregon and Southern Oregon College.

Moses Lake Project (16): Moses Lake, Washington, junior high school participated in a project developed by a Washington State Fitness Committee composed of representatives from the Washington Association for Health, Physical Education and Recreation, the State Department of Public Health, and the State Department of Public Instruction; testers were from Washington State University.

Project Broadfront (3): This project was conducted for five years in the Ellensburg, Washington, public schools. As part of a much broader project, PFI tests were administered semi-annually and the low fitness program was conducted; cooperating institutions were Stanford University, University of Oregon, and Central Washington College. The American Academy of Physical Education cited Lloyd Rowley for his administration of Project Broadfront and the Ellensburg School District for its support.

Time and again, the effectiveness of this program to improve the condition of boys and girls who are muscularly weak for their sex, age, and weight has proven effective in actual school situations. When properly applied, it has contributed significantly to the totality of the individual, physically, mentally, psychologically, and emotionally. Muscular strength, both gross (SI) and relative (PFI), is related intricately to the entire physical/motor complex of the individual, including his or her maturity, physique type, body size, motor fitness, and athletic prowess. (4, 8)

At this point, may I inject a tribute to the late Frederick Rand Rogers whose contributions to physical fitness processes through physical education have not enjoyed the recognition they deserve. He was the originator of the Physical

Fitness Index; it was his insight, energy, and drive that initiated and promoted PFI programs, first in New York state, then in New England and other parts of the country. Despite all sorts of obstacles and disappointments, he continued to fight for the basic principles and practices of this program. For his prime time in physical education, he had by far the most realistic concept of muscular strength and its fundamental relationships to body, mind, and spirit.

Thomas K. Cureton, Jr.

Several physical educators over the years have made highly significant contributions to physical fitness concepts, processes, and programs. One such person who has been pre-eminent is Thomas K. Cureton. Starting at Springfield College in 1930, and continuing since 1941 at the University of Illinois, Dr. Cureton has been and still is a teacher, researcher, author, lecturer, consultant, and clinician. He has served school-age youth, university students, and adults. In 1944, he established the Physical Fitness Research Laboratory at Illinois, a laboratory that produced some 600 graduate theses and is still operating. Seventy persons received Doctor of Philosophy degrees as his advisees (14); many on this list are now among our outstanding physical fitness leaders and scientists, an occurrence that has indirectly expanded his influence many fold. Highlights of his significant contributions are briefly mentioned. (13)

1. In the 1930's, Cureton did considerable research and published books, monographs, and articles on aquatics and the improvement of physical fitness through aquatics. During World War II, he conducted aquatics training programs at various U.S. army, navy, marine, and coast guard bases. From 1941-1963, he chaired the AAHPER Aquatics Leadership Committee; about 600 aquatic fitness clinics were sponsored throughout the country by this committee. He worked extensively in the YMCA's of the country on their aquatics and fitness programs.

2. The summer University of Illinois Sports Fitness School for boys was

started by Cureton in 1948 and has continued to the present. It has been a model for physical educators at other universities desiring to conduct similar programs.

3. Cureton's extensive studies of adult physical fitness started in 1944. Numerous publications resulted, including five books. His Physical Fitness and Dynamic Health appeared on the 100 best-book list of the American Library Association and was a Book-of-the-Month Club selection.

4. Cureton has conducted numerous clinics in YMCA's and universities for many years. For over a decade, he was a regular lecturer and clinician for the six regional clinics sponsored each year by the President's Council on Physical Fitness and Sports. He has served in a similar capacity for physicians, dentists, police, and industrial concerns. He has spread his gospel abroad, lecturing and demonstrating in Germany, Belgium, Canada, Venezuela, and other countries.

5. The publications by Cureton have been enormous: 56 books and monographs and 340 of his articles between 1930 and 1969 are listed in Education and Fitness - 1969 (14). He is now serving as over-all editor for the five-volume encyclopedia of physical education, fitness and sports, and has shared editorship on single volumes. An early contribution to fitness testing was his Physical Fitness Appraisal and Guidance, 1947. He developed the now well recognized system of progressive, rhythmical, non-stop exercise.

6. The honors bestowed on Cureton have been numerous. He has received the AAHPERD's highest award, the Luther Halsey Gulick Medal, and the Hetherington Award by the American Academy of Physical Education. He has been cited by the President's Council on Physical Fitness and Sports, the American College of Sports Medicine, the National YMCA, and the American Dental Association. He has received honorary Doctor of Science degrees from the University of Ottawa and Southern Illinois University.

7. And, believe it or not, Cureton still not only exercises vigorously on a regular basis, but he competes. Just one illustration: At the 1979 Senior Olympics, he entered 11 events in swimming, running, and bicycling and won them all; his wife Portia, entered six events and won five.

During the past 50 years, Cureton has realistically and dynamically put the "physical" back into physical education.

## The Current Scene

Next, some comments will be made on the current physical fitness scene in the United States.

### Indications of Growth

A National Adult Physical Fitness Survey (5) was conducted seven years ago by the Opinion Research Corporation, Princeton, N.J. Of this sample of 3,875 men and women, 55 percent indicated that they engaged regularly in some form of exercise. For those who exercised, the main reason was for good health. Adults who participated in physical education when they were in school were more likely to exercise as adults. More than 90 percent of the adults believed that all people should have physical education from elementary school through college.

C. Carson Conrad (12) made a status report on physical fitness today at the 1979 White House Symposium on Physical Fitness and Sports Medicine, in which he gave some startling facts, including: (a) Fitness trails were built in more than 1,000 cities during the 1970's. (b) There are nearly two million permanent, or in ground, swimming pools in the United States, 114,300 of which were constructed last year. (c) There are 3,000 commercial health spas and figure salons with three million members, which grossed $400 million in membership fees last year. (d) Private enterprises are spending an estimated $5 billion a year on employee fitness programs, and the American Association of Fitness Directors in Business and Industry has more than 1,750 corporate and individual members. (e) Sales of

sporting goods and related equipment and clothing approached $15.4 billion in 1979, a six-fold increase over 1960. (f) Approximately 18 million boys and girls took the National Youth Fitness Test last year. (g) Nearly 30 million young people aged 6-12 years of age are involved in out-of-school sports programs.

In his address, Conrad did sound a pessimistic note, despite all the great progress in physical fitness during the past two decades. One concern was that school physical education has not kept pace with national growth in participation; it appears to be in a state of decline with requirements, staffing, and financing being reduced. Of greatest concern in this regard is the tendency of states to eliminate the physical education requirement, placing it on an elective basis in some or all grades, in spite of the fact that parents in a national poll overwhelmingly favored the requirement.

The Jogging-Running Phenomenon

According to a statement by the President's Council on Physical Fitness and Sports (10), the number of runners throughout the United States has doubled in the past five years; it is a present-day phenomenon of considerable proportion. This phenomenon has taken two directions: jogging for cardiovascular fitness and competitive distance running.

Just a few years ago, an article on physical fitness or some aspect of it, such as jogging was a rarity in the press or in popular magazines. Now they are commonplace, thus reflecting a new and continuing interest by the public. The weekly magazine, Newsweek, has put joggers on its cover, as did Sports Illustrated for the 1980 New York City marathon; U.S. News and World Report has written about "The Fitness Mania." Some periodicals are now devoted to running, including Runner's World, The Jogger, The Runner, On the Run, and Marathoner. Some 30 books on running and exercise for the lay public have been published recently. Famous among these is The Complete Book of Running by James F. Fixx,

which has sold well over a half million copies, and it was on Time's ten best-seller list of non-fiction books for several months. Also, associations devoted to jogging have been formed, such as the National Jogging Association, the American Medical Joggers Association, and the Road Runners of America.

An outgrowth of the jogging phenomenon that has swept the country is competitive distance running. A national calendar of running events throughout the country, appearing in the September 1978 issue of The Jogger, although incomplete, listed 88 "Fun Runs" in 35 states and 161 road races in 36 states. For many years, the Boston Marathon was the only one around. Now, marathons are being held in many places, as well as runs of lesser distances. And, competitors number in the thousands. There is also the master's competition and Senior Olympics with categories of runners from middle to old age. Also, women are now competing in distance runs, including marathons. According to one source (1), 50,000 Americans have completed at least one marathon and 4,000 of them have done it under three hours. According to a story by Kenny Moore in Sports Illustrated (17), 14,000 men, women, and children ran in the 1980 New York City marathon; 20,000 applicants were rejected. Of the participants 1,142 were lawyers and 546 were physicians; 2,000 were foreign entries from 43 countries; 2,500 volunteers readied 450,000 drinking cups and used 130 gallons of blue paint to put down the line for the course through the five borroughs of New York City.

One might well ask whether the current accelerated participation in jogging and in competitive distance running is a fad or a trend. Jogging for health, should certainly be a trend, since research has demonstrated its essential values for cardiovascular fitness, weight control, and physical fitness generally. All the ballhyoo on distance and marathon running should not obscure or negate these vital values; the need is ever present in a sedentary society. As for competitive distance running, it could be a fad but does not need to be. These long com-

petitive runs may be likened to our interscholastic and intercollegiate athletic programs, an outlet for superior performers (runners in this case) to express themselves fully. Proper jogging regimens are undeniably valuable to the individual, but whether they must be increased in duration and intensity to competitive long-distance running is questionable.

It should be realized, however, that, despite jogging's value, other activities, such as swimming, bicycling, rope skipping, hiking, and some sports, also, are effective in developing and maintaining cardiovascular fitness. Further, we must constantly recognize that components, especially muscular strength and muscular endurance, are basic to physical fitness and must not be neglected, especially for those who are physically underdeveloped.

Physical Fitness Research

Although research has been an important endeavor of physical educators for well over a century, the transition mentioned earlier from medical to educational leadership resulted in research primarily becoming a function of graduate education after World War I, which was also in its initial stage in the United States. Very few physical education research laboratories existed prior to World War II, the most noted of which were at Springfield College, State University of Iowa, and George Williams College; such laboratories were starting at the University of Illinois and University of California at Berkeley. In the AAHPERD, the Research Section was recognized in 1928 and the Research Council was proposed in 1942; the Research Quarterly originated in 1930.

Following World War II, the increase in research laboratories was dramatic, so that presently many graduate departments of physical education have well established and equipped laboratories with well prepared and experienced professors in charge. Interdisciplinary research has become prevalent. From the standpoint of physical fitness research, one manifestation of this was the for-

mation of the American College of Sports Medicine in 1954; in this organization, physical education scientists are associated with physicians and exercise physiologists in a common research endeavor that has become increasingly productive.

Physical fitness research, most certainly, has not been confined to physical education. In recent years, several other disciplines have contributed greatly, although in some instances physical education scientists have been jointly involved. Some of these are: epidemiologists, who have contrasted the incidence of degenerative diseases among physically active and physically sedentary populations; nutritionists, who have shown that exercise is an effective partner to proper diet in fat reduction; cardiologists, who have shown the need for exercise in the prevention of and rehabilitation from heart attacks; physicians, who have recognized the desirability of early ambulation and exercise following major surgery; exercise physiologists, who have found that exercise favorably affects blood pressure, resting and exercising heart rates and concentrations of cholesterol and triglyceride in the blood stream; physiatrists who showed the extreme deleterious effects of confined bed rest upon the total organism; psychiatrists who demonstrated the value of exercise in the treatment of mental and emotional disorders; and gerontologists, who established the value of proper exercise in slowing physiological aspects associated with the aging process. Also, in business and industry, studies have shown the value of physical fitness in reducing absenteeism, in improving workers' effectiveness, and in prolonging working careers of employees and executives. Physical educators have shown the totality of man, physically, mentally, psychologically, and socially; and they have studied the nature, extent, and significance of physical differences between individuals.

Speaking of physicians, a great change in the attitude of the medical profession toward exercise has occurred: 25 years ago, most "could care less"; today, medical associations and leaders are strong advocates of the proper kind and amount

of exercise as a health-promotion means. Some physicians, such as Hans Kraus, Kenneth Cooper, Samuel Fox, and George Sheehan, are well known in this field.

All aspects of relevant research constitute an essential part of the present physical fitness scene. The research results of many aspects of physical fitness have been widely disseminated in the professional literature and in media presentations for the lay public. These results are convincing proof that the proper kind and amount of exercise are essential for an effective life style for all Americans. They constitute the basic justification and motivation for exercise as a way of life.

## In Conclusion

Now, to conclude this address. We saw physical fitness as the only objective of physical education in the early days of physical education; its value was associated with preparation for defense and with preventive medicine while other values of exercise were realized concurrently. Then, we saw physical fitness wane in importance, to become concomitant to other objectives of physical education. Finally, we saw a resurgence in emphasis on physical fitness triggered and promoted by presidents of the United States through their physical fitness councils and dynamically supported by research from many sources that demonstrated its value for the total well being and effectiveness of the individual. We are now riding a crest that should continue to mount ever higher as more and more Americans realize the importance of exercise as a way of life and incorporate it appropriately into their everyday lifestyles.

In schools and colleges, physical educators need to stress the importance of physical fitness and should mount and maintain effective daily programs with emphasis on those who are deficient in basic physical fitness components. At the same time, physical educators should remember that physical education has other essential purposes in the preparation of boys and girls for living which

should not be neglected. While the assigned topic for this address is on physical fitness, I feel that physical educators can and should achieve multiple objectives.

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